DOCUMENT RESUME

ED 104 804 SP 009 036

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TITLE A Student Centered Learning System; An Overview.
INSTITUTION Quincy Public Schools, Mass.
PUB DATE 1 Sep 74
NOTE 29p.

EDRS PRICE MF-$0.76 HC-$1.95 PLUS POSTAGE
DESCRIPTORS Accountability; Behavioral Objectives; Educational Objectives; Evaluation; *Guidelines; Learning Activities; Management Systems; Multimedia Instruction; *Student Centered Curriculum

ABSTRACT

The Student Centered Learning System (SCLS) was developed by Quincy, Massachusetts educators to identify, develop, and implement a learner-responsive education system. The SCLS has 10 components. The first states the goals of the Quincy public schools as helping students to become competent as self-fulfilling individuals, citizens, and workers in a world that is maximally effective for all. The second component lists 11 behavioral projections for learners. The third component gives the rationale for the discipline. The fourth component describes comprehensive concepts for the discipline. The fifth component considers instructional objectives. The sixth component consists of diagnostic and evaluative tools and procedures. The seventh component, student learning activities, forms the basis for the last three components of the SCLS: appropriate multimedia; management systems; and self-learning environment. (PB)

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A Student Centered Learning System

An Overview

By Lawrence P. Creedon

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Quincy Public Schools
Quincy, Massachusetts

SP009 036

A Student Centered Learning System

The Student Centered Learning System is a term to designate a continuing effort by educators in Quincy to develop and implement a learning system that is based on sound theory and that is transferable into everyday practice so as to result in a design for learning that is responsive to the needs of each student. In curriculum development, the SCLS reflects a structure-of-the-discipline approach, while in instructional theory a synthesis is being forged from compatible principles of several schools of psychological education, including dimensions of developmentalism, behaviorism, and field theory.[1] The SCLS consists of ten components which, when taken as a whole, provide for a theoretical as well as a practical guideline for the development and implementation of a learner-responsive school system.

The SCLS has no absolute ends of its own; however, that does not mean that eclecticism is at the core of the Quincy design for learning. The SCLS is not enigmatic in theory, indefinite in curriculum, indeterminate in instruction, or random in process. On the contrary, the intent of educators in Quincy is to fashion a system for learning that in theory is sound and defensible, and in practice is worthy of being advocated. The SCLS should be viewed as a vehicle for Quincy educators to discover, carry, and disseminate knowledge through a process of psychological education. It should be seen as a vehicle through which educators and students can continue to examine such re-occurring questions as:

1. What is the basic nature of humanity and reality?
2. What is knowledge, does it have structure, and if so, can that structure be identified and learned?
3. Of all that there is to know, what do human beings need to know, when do they need to know it, and why?
4. How do human beings come to know and how do educators organize and function so as to create and maintain a school system that is learner-responsive?

The challenge for educators in Quincy is to examine such questions as these so that their practice, regardless of area of specialization, can be characterized as scholarly and humane.

The design for learning of the Quincy Public Schools is composed of ten components, none of which is in and of itself new. Each component is identified in readily understood language. They are:

1. Goals of the Quincy Public Schools.
2. Behavioral Projections for Learners.
3. Rationale for the Discipline.
4. Comprehensive Concepts for the Discipline.
5. Instructional Objectives.
6. Diagnostic and Evaluative Tools and Procedures.
7. Student Learning Activities.
8. Appropriate Multi-Media.
9. Management Systems.
10. Self-Learning Environment.

As suggested, it should be apparent that in and of themselves the ten components of the design for learning offer nothing new. What is of significance in the design rests in the expansion of each component through definition and interpretation as well as the logic of the construct when viewed as a whole.

To some it might appear that the whole proposition is a lot of to-do about little or nothing, in that what man has needed to know has always been self-evident and educators have always managed to teach students what they needed to know without recourse to theories about curriculum and instruction or systems analysis. While it is true that for centuries educators have dealt in art, music, motion, linguistics, math, science, and logic, it is not true historically or even today that they have adequately understood what is implied in the term, "structure of the discipline." Unfortunately, it is also true that educators have seldom adequately understood the learning process and the relationship between mind and matter or, said another way, the learner and the environment. The SCLS provides a process for Quincy educators to interact with those issues.

The critics of education abound, and their common cry seems to be that the *Crisis in the Classroom* (Silberman, 1970), the reason *Why Johnny Can't Read* (Flesch. 1955) or add and is thus experiencing intellectual *Death At An Early Age* (Kozol, 1966) is due to what goes on *Behind the Classroom Door* (Goodlad and Klein, 1970). Proclaiming that schools are neither *Places for Learning (nor) Places for Joy* (Sizer, 1973), the critics have termed *Teaching As A Subversive Activity* (Postman and Weingartner, 1969), and are asking for the *De-Schooling of Society* (Illich, 1970).

Certainly the expressions, and in several instances the outright accusations, of those who in conscience are deeply concerned about the quality and direction of public education cannot be taken lightly if for no other reason than that many of the severest critics are educators themselves who have devoted their full energy to making schooling meaningful.

High among the reasons given by the critics for the lament over the quality and direction of public education today is the lack of appreciation among practitioners for the credibility of schooling on the trinal theories of learning, knowledge, and systems. The [illegible]us concern is that, inasmuch as the [illegible]cious ability to learn is a distinct function of human beings, educators need to be sensitive to not only what human beings need to know but also how they learn and become capable of learning.

Traditionally, learning has been viewed by philosophers and psychologists as a function of the mind with matter, with experience and environment being of little importance and with systems theory for the organization of the school being non-existent. During the present century the emphasis has shifted; and theories of faculty psychology and mental states[2] have fallen into disrepute in contrast to the rise of developmentalism, behaviorism, and field psychology. Unfortunately, the professional preparation of educators has lagged behind; and teachers in practice today, whether they be junior or senior in terms of service, have seldom been adequately schooled in contemporary theories about the structure of knowledge or of how human beings come to know. Much of what goes on in the classroom today is an amalgamation of traditional practice and current fashion. Consequently, the assumption prevails that the purpose and practice of education is seldom structured in response to identifiable theory. It is this assumption that the critics in unified chorus scorn.

Among those who have expressed deep concern over the lack of understanding of learning theory by educators is Charles E. Silberman. In support of his position Silberman, in *Crisis In The Classroom,* cites the sustaining opinions of such past and present authorities as John Dewey, Lawrence Cremins, and Theodore R. Sizer. Speaking for himself, while reflecting the views of others such as John Dewey, Silberman has stated:

> "The tendancy of educational development to proceed by reaction from one thing to another, to adopt for one year, or for a term of seven years, this or that new study or method of teaching, and then as abruptly to swing over to some new educational gospel," John Dewey wrote in 1904, "would be impossible if teachers were adequately moved by their own independent intelligence. The willingness of teachers, especially of those occupying administrative positions, to become submerged in the routine detail of their callings, to expend the bulk of their energies upon forms and rules and regulations, and reports, and percentages, is another evidence of the absence of intellectual vitality. If teachers were possessed by the spirit of an abiding student of education, this spirit would find some way of breaking through the mesh and coil of circumstances and would find expression for itself.
>
> If this be so, teachers need more than a knowledge of subject matter and a little practice teaching experience before they enter the classroom. They need knowledge about knowledge, about the ramifications of the subject or subjects they teach, about how those subjects relate to other subjects and to knowledge — and life — in general. They need insights into their purposes as a teacher — why they are teaching what they are teaching, and how these purposes relate to the institutional setting of the school and to the values of the local community and the society at large. They need understanding of the process of growth and development and of the nature of mind and thought. Most important, perhaps, they need to know that they need to know these things — they need to understand the kinds of questions their teaching will raise and to have some sense of where to turn for further understanding.

It would be folly to suggest that the criticism espoused by Dewey in 1904 and re-affirmed by Silberman and scores of others since then was not applicable to the state of the art in Quincy. However, it is less applicable in Quincy today than in any time during at least the past few decades. The reason is due in significant measure to the construct of the SCLS and to its growing internalization by teachers and administrators. Through the SCLS, educators in Quincy have a vehicle for exploring the questions echoed by Silberman.

As stated earlier, the approach to curriculum development taken by Quincy educators and reflected in the SCLS is that of the structure of the discipline. The term came somewhat into common usage as the result of the report by Jerome S. Bruner of the 1959 conference at Woods Hole, Massachusetts, where 35 scientists, scholars, and educators came to discuss how science in education might be improved. Professor Bruner served as chairman of the conference and reported on its deliberations in his book *The Process of Education.*

In that and subsequent writings, Professor Bruner elucidated his understanding of structure as it relates not only to subject matter but also to the learner. In *The Relevance of Education* Bruner has suggested that "a learned discipline can be conceived as a way of thinking about certain phenomena," and this he calls, "the psychology of a subject matter."[4] He continues that, "underlying a disci-

pline's 'way of thought' there is a set of connected, varyingly implicit, generative propositions."[5] It is these propositions that are referred to in the SCLS as Comprehensive Concepts, and they are cited for each major discipline.

In *The Process of Education* Bruner states:[6]

> Mastery of the fundamental ideas of a field involves not only the grasping of general principles, but also the development of an attitude toward learning and inquiry, toward guessing and hunches, toward the possibility of solving problems on one's own.

Finally, in summarizing his views on the importance of structure, Bruner stated:[7]

> . . . that the curriculum of a subject should be determined by the most fundamental understanding that can be achieved of the underlying principles that give structure to that subject. Teaching specific topics or skills without making clear their context in the broader fundamental structure of a field of knowledge is uneconomical in several deep senses. In the first place, such teaching makes it exceedingly difficult for the student to generalize from what he has learned to what he will encounter later. In the second place, learning that has fallen short of a grasp of general principles has little reward in terms of intellectual excitement. The best way to create interest in a subject is to render it worth knowing, which means to make the knowledge gained usable in one's thinking beyond the situation in which the learning has occurred. Third, knowledge one has acquired without sufficient structure to tie it together is knowledge that is likely to be forgotten. An unconnected set of facts has a predictably short half-life in memory. Organizing facts in terms of principles and ideas from which they may be inferred is the only known way of reducing the quick rate of loss of human memory.

Obviously, Bruner is not the sole originator of the structure of the discipline approach, nor does the theory introduce totally new ideas. Much of Bruner's contribution rises out of a pragmatic tradition leading to field theory as opposed to behaviorism, or to the now-repudiated doctrines of faculty psychology and mental states. These latter two doctrines held that learning was a function of the mind; and as a consequence interest, experience, and environment were not significant in the former and had limited importance in the latter. In contrast Bruner and field theorists in general have placed a great deal of emphasis on the interaction between the learner — through his interests and experience — with the structure of the discipline and the existing environment.

A concern for learning cannot end with a concern about the structure of knowledge. It is not enough for educators to claim that they know their subject matter and that is all they need to know in order to teach. Knowing the material, the content, of a subject is not the same as understanding the structure of the discipline or of a domain of knowledge. Strange as it may seem the preparation of educators frequently is limited to a mastery of content in a specific area of specialization with little in-depth attention given to the conceptual understanding of the domain of knowledge itself or with the psychological process at work as human beings come to know.

It is not uncommon for teachers and administrators to function in school without a conscious awareness of how or whether or not their behavior is related to what is recognized as a process involved in coming to know. If such an awareness does exist it is frequently anchored in tradition or fashion as opposed to sound and identifiable theory. Consciously or otherwise the day-to-day actions of many

educators do not go beyond Herbart's doctrine of apperception and the five steps of the Herbartian method.[8] For better than a half a century both the doctrine and the method have been largely repudiated by psychologists, yet Herbartian methods continue to be practiced in schools.

Educators have long been accused of fadism as they eclectically follow the currents of fashion without any obvious regard for rationale and consistency. In response to fashion, educators frequently attempt to organize and administer schools consistent with that which is popular at the moment while remaining unaware of how a particular practice fits into the total scheme of things or of what basic theory it is intended to reflect. For example, classroom practice might be geared to continuous progress without an understanding of John Dewey's notion of continuity of experience, or to programmed instruction minus an understanding of B F. Skinner's conceptualization of contingencies of reinforcement. Other fads might include open space and alternative schools and with the same lack of concern or appreciation for why. The intent of Quincy educators working through the SCLS is to remove randomness from the process of coming to know and replace it with the conscious application of theory to practice.

To be involved in the practice of education today is to embrace to some extent methods advocated by pragmatists since at least the turn of the twentieth century. However, to be simply involved as a result of recent tradition or the fashion of the moment is not adequate and not in keeping with the identifying marks of a profession. To suggest that the Quincy Public Schools is moving forward in response to tenets of pragmatism is to state that the doctrines of faculty psychology and mental states are being minimized as those 19th century positions spoke to such things as the origin, purpose, and function of mind. It is to advocate in their stead, as a psychological foundation for schooling, dimensions of developmentalism, behaviorism, and field theory.

To the extent that thought and knowledge develops through an evolutionary process of thesis, antithesis, and synthesis, contemporary theories in developmentalism reach back to include aspects of the work of such contributors as Rousseau, Pestalozzi, Foebel, and Herbart. However, present day understandings have emerged more directly from the work of John Dewey, while centering on the thinking of the Geneva school and in particular the genetic epistomology of Jean Piaget. Like Bruner, Piaget has been interested in discovering the "pschycological structures that underlie the formation of concepts fundamental to science."[9] For educators, including those in Quincy, the application of Piaget's Stage Theory of Intellectual Development is most germane. Through it Piaget orders the structure of knowledge in response to the stages of mental development of human beings. Piaget's stages from simple to complex are:[10]

1. Sensory - Motor Stage (birth to two)
   Mute - no use of verbal symbols
   Learns to perceive - discriminate and identify objects
2. Pre-Operational Stage (two to seven)
   Symbols and representations
   Acts on perceptive impulses
   Self-centered
   Static - irreversible thinking
3. Concrete Operations Stage (seven to twelve)
   Analyzing
   Conscious of dynamic variables
   Measures
   Classifies things in groups or series

4. Formal Operations Stage (adult)
   Abstract-conceptual thinking
   Reasoning generalized
   Evaluation
   Hypothesizing
   Imagining
   Synthesizing

An examination of the SCLS in its present state as well as of the practice of educators in Quincy will not yield much of a positive conclusion that the process and the practice reflect what Piaget is advocating; however, what is increasingly apparent is an effort to synthesize Piaget's stage-theory of development with the total instructional theory supporting the Student Centered Learning System.

The psychology of behaviorism has had an impact on the practice of educators as they assist young people in coming to know. Behaviorism emerged as a separate school of thought as psychologists abandoned the notion of mental states and looked elsewhere for the key to and significance of learning. Psychologists looked to actual behavior and concluded that learning took place as a result of conditioning or stimulus-response actions. The early behavioral psychologists concluded that it was folly to look introspectively into the mind of the learner in order to discover how learning takes place. Instead they advocated studying the conditions operating within the environment in order to determine how human beings learn. Coupled with the conclusion that learning took place in response to conditioning or stimuli, the early behaviorists concluded that learning was not a purposeful activity controlled by the learner. As understood by B. F. Skinner, who ranks among the most noted of contemporary behaviorists, learning takes place as a result of contingencies of reinforcement at work in the environment and not in response to any insightful act on the part of the learner.

Behaviorism has visited upon psychologists and educators a whole new vocabulary and list of terms including conditioned reflex, reflex arc, stimulus-response bond, habit formation, operant conditioning and contingencies of reinforcement. While it is not the purpose of this paper to review each in detail, it is important for educators to realize that the terms are not synonymous, and that some of them have lost their credibility even among behaviorists. In several instances the terms suggest different actions or activities as the learner reacts, responds, or is conditioned by the subject matter to be learned or by the environment in which learning takes place.

Behaviorist strategies for learning are apparent in school today particularly in tool and skill subjects. In the past decade programmed instruction techniques as advocated by B.F. Skinner have taken hold and appear in many self-pacing learning materials.

The task for Quincy educators relative to behaviorism is three-fold. First, it is to understand the basic concepts underlying behaviorism. Second, it is to become sensitive to the influence behavioral psychology has had on the development of existing learning materials so that educators will use the materials consistent with their intent. Third, it is to better understand when and where behaviorist concepts and strategies legitimately can be synthesized with those other theories about curriculum, instruction, and learning that are reflected in the SCLS.

This last point can be illustrated by citing a concern that Skinner has over a strict interpretation of Bruner's notions of structure of the discipline and a sequentially spiralling curriculum, as well as Piaget's stage-theory of development. In *Beyond Freedom and Dignity* Skinner states:[11]

A pure developmentalism, contenting

itself with patterns of sequential change in structure, misses the chance to explain behavior in terms of genetic and environmental histories. It also misses the chance to change the order in which stages succeed one another or the speed with which they do so. In a standard environment a child may acquire concepts in a standard order, but the order is determined by contingencies that may be changed.

Quincy educators working within the SCLS on the relationship of Comprehensive Concepts to Instructional Objectives in any given discipline have experienced the point being made by Skinner. Once having understood the structure of the discipline approach and the practicality of using instructional objectives as at least the precursor to learning activities, they have begun to ask questions about the value as well as the limitations of attempting to sequence instructional objectives from simple to complex in a taxonomical construct. They have begun to ask that if instructional objectives are sequenced, how rigid should the sequence be, and what safeguards need to be built in to protect insightful and intuitive learning? In responding, behaviorists would minimize the validity of insight and intuition, and thus a critical issue in learning theory is joined. While educators in Quincy do not have the answer, they are struggling to understand the issue so as to be able to implement an instructional program as knowledgeably as possible.

The third major psychological force that has had an impact upon twentieth-century educators is that of field theory. Growing out of the philosophical position of pragmatism, field theory is also known by the terms positive relativism and Gestalt psychology. In a practical sense educators – particulary those who specialize in guidance, mental health, and psychological services – are more familiar with the term Gestalt than with field theory or positive relativism.

To better understand the term "field," one could make reference to two definitions given thirty years apart. In 1940 Boyd Bode defined field theory by stating:[12]

> All sense perception involves a field, which is to say that the psychological processes involved in sense perception involve corresponding changes in the field outside the body . . . . From this general point of view there is obviously no basis for the theory that our experiences are composites of sensations, images, and feelings. The "field" concept suggests that the unit of a given experience is not a product of blending or of "mental chemistry" but is rather an aboriginal quality or characteristic of the situation. The experience is not a composite because the field is not a composite. The perceived object necessarily appears in some kind of context, and all the elements in the situation modify one another reciprocally. The insistence that there is a basic unity of this kind in experience – or, as it is sometimes put, that the whole is greater than the sum of its parts – is a cardinal doctrine of what is known as the Gestalt psychology . . . .

Thirty-one years later in 1971, Morris L. Bigge defined field psychology by stating:[13]

> Use of the concept psychological field implies that everything which affects behavior at a given time should be represented in the field existing at that time, and that only those facts can affect behavior which are part of a present field. In order to understand a person's present personality structure, it often is convenient and perhaps necessary to inquire into the individual's personal history. But such inquiry is merely a means of knowing the present structure of his life space. A person's psychological field that

exists at a given time contains, as well as the environment of the present, the views of that individual about his future and his past. But, it should be emphasized that any psychological past or psychological future is a simultaneous part of a psychological field existing at a given time. Psychologically, there is no past or future except as it enters into the present. Present situations are influenced by past or future ones if, and only if, the past or future ones, as viewed in the present, make the present appear differently than it otherwise would. It is the contemporary meaning of events that influences our behavior in relation to them.

In a much more abbreviated definition, and one thus subject to the error of over-simplification, field theory is what John Dewey might have referred to as learning by doing and undergoing, and what present-day positive relativists would refer to as the simultaneous mutual interaction of the learner and his environment (life space).

The SCLS is intended to be student centered, and in field theory the individual and that individual's environment or life space are central to all learning and living. Component Six of the SCLS is concerned with Diagnostic and Evaluative Tools and Procedures, while Component Ten speaks to a Self-Learning Environment. It is in these dimensions of Quincy's design for learning that field theory plays an influential role.

By way of summarizing what has been stated thus far it is that:

1. Schooling must be responsive to the needs of each individual student.
2. Educators in practice today (but no more than their predecessors) have an inadequate understanding as to the theory or theories that underlie curriculum development, the implementation of instruction, and how learning takes place.
3. The design for learning of the Quincy Public Schools, referred to as the Student Centered Learning System, is a theoretical construct aimed at providing teachers and administrators with a common process for developing curriculum, implementing instruction, inquiring into the structure of knowledge, and studying the process by which human beings come to know.
4. In curriculum development Quincy educators are following a structure of the discipline approach and thus are committed to identifying the comprehensive concepts that support each discipline.
5. Instructional objectives are used as a means of translating the comprehensive concepts into instructional units which in turn form the basis of learning experiences for students. These experiences are to be offered in a manner that is consistent with what is known about the interest, need, and ability of each student.
6. A logical and thus defensible instructional theory fit for direct implementation is being fashioned out of compatible dimensions of developmentalism, behaviorism, and field theory.

The remainder of this paper will be devoted to a brief description of each of the ten components of the SCLS. These descriptions are not intended to be definitive statements on the rationale for each of the components inasmuch as that task is being undertaken through the preparation of separate, more lengthy papers, each being devoted to a single component of the design for learning.

GOALS:

To state the goals of education for the Quincy Public Schools is a simple task. The terms used have a high degree of credibility among citizens of all ages and walks of life. While stating the goals

is simple and non-controversial, the interpretation of them is not, and the implementation of any accepted understanding is equal to a lifetime and more of effort.

The goals of the Quincy Public Schools commit all associated with the school system to strive toward helping students to become competent as:

Self-fulfilling Individuals

Citizens

Workers

In a world that is maximally effective for all.

All goal statements in a democratic society should be seen as evolving; and those cited reflect the tradition of such rich documents as the Declaration of Independence, the Bill of Rights, and the United States Constitution. In addition, the intent of the terms can be enhanced by reference to such time-honored doctrines as the Judaic-Christian tradition, as well as our legacy found in such classics as Plato's *Republic* and John S. Mill's essays on "Utilitarianism" and on "Liberty."

In that it is the purpose of a democratic society to serve the interest of all its citizens above those of the state, goals need to be stated in terms of individuals. Each succeeding generation and each person must re-define what self-fulfillment, citizenship and worker means for self, as well as for a world that is maximally effective for all.

History, including that of educational thought, suggests that people, and in this context educators, have seldom taken goal-setting seriously. The critics of education referred to earlier are uniform on this point. However, the Credo of the Quincy School Committee acknowledges that goal-setting is an important task inasmuch as:[14]

A democratic society is
An aggregate of the individuals
Who comprise it,
Its operation and values
Being established
By the actions and interactions
Of these individuals –
Over a period of time
Cumulatively.

Ten verses later the Credo concludes:

The task
At local levels
Is that of implementation,
The question to be deliberated:
What provisions and services
Are required?

It is a basic assumption in Quincy that goal-setting is not simply rhetoric – unsupported or inflated discourse. The "task" alluded to in the Credo is being taken seriously and the SCLS is being offered as the construct for identifying the "provisions and services that are required."

BEHAVIORAL PROJECTIONS.

To be totally clairvoyant relative to what the future holds and as to how educators are to assist young people with living and learning today while anticipating tomorrow is not an easy task, and infallibility is not to be expected. However, educators do not have license to minimize or abandon one in favor of the other.

One of the first books ever written in the United States devoted entirely to curriculum development as we use that term today was Franklin Bobbitt's *The Curriculum.* Writing in 1918, Bobbitt pointed out that "vision" must be ahead of "practice." Bobbitt was alerting his contemporaries to the need for what is referred to in the SCLS as Behavioral Projections. Bobbitt asserted:[15]

Our professional vision must be greatly in advance of our practice. We shall move forward only step by step with feet on solid earth, but we must be

able to see far beyond our immediate next steps in order that they be taken in the right direction . . . for that reason . . . we have not looked merely to what is practicable next year or even five years hence. Often we have discussed matters that are to be developed only through a slow moving program covering a long series of years.

In short, educators have responsibility for maintaining an equilibrium between that which is desired and thus valued here and now – such as mastery of the fundamental processes – and that which is desirable and ultimately more valuable – such as a life style of inquiry and an ability to cope with and/or guide change.

As advocated by Quincy educators, Behavioral Projections and Behavioral Objectives are not one and the same. In a broad sense Behavioral Projections are related more to field theory since through them educators and others strive to identify what individuals will need in order to function effectively in varying "life spaces." On the other hand, Behavioral Objectives are more akin to behaviorism as they primarily state cognitive and psychomotor performances that need to be mastered if the learner is to gain a better understanding of the Comprehensive Concepts underlying a particular domain of knowledge and thus function maximally on a day-to-day basis.

When reduced to a listing, the Behavioral Projections advocated by Quincy educators are:

1. An understanding of individuality
2. An involvement in aesthetic experiences
3. A life style of inquiry
4. A self-motivated learning style
5. Individual expression
6. Marketable skills
7. An ability to cope with and/or guide change
8. Worthy use of leisure time
9. Fundamental processes
10. Good physical and mental health
11. Scientific literacy

To date, educators in Quincy have not concentrated on an in-depth analysis and refinement of just what is intended by some of the Behavioral Projections and as a result remain somewhat guilty of what Ole Sand, Director of the NEA Center for the Study of Instruction termed as, "putting first things last."[16] However, there is an awareness of the need and a process for examining each has been introduced.

Mindful of the need to involve not only teachers and administrators in determining curriculum goals, Quincy educators have established a series of Relevance Forums with membership open to students and parents, as well as to practitioners in various occupations. The forums might be termed what Alvin Tofler in *Future Shock* called "Councils of the Future." In addition, university scholars are being invited to Quincy to view the curriculum of the SCLS from their particular areas of expertise.

Quincy's recognition of the need in the area of Behavioral Projections is captured in Ralph Tyler's observation that schooling must be concerned with:[17]

> . . . our conception of the "good person" we are trying to develop. It is certainly possible to teach a person as though he were an automaton . . . . But is this the kind of person we are trying to develop? . . . . We [must put] an emphasis on such things as problem solving and open-mindedness. . . helping the learner to become conscious of the fact that . . . [a] . . . process of inquiry is involved. . . [We] also have problems of conflicting values and often need to clarify our guiding philosophy . . . [The] clarification of our values is a basic step in curriculum

planning and in the selection of objectives because we can teach in such a way that values or ends are helped, or we can teach in such a way that they are denied.

The side Quincy has elected should be self-evident.

RATIONALE:

In order to demonstrate that educators are in need of a rationale for doing what they are or are not doing, one need not go any further than the titles of dozens of popular books that have appeared on the market in just the past decade. Earlier in this paper the titles of several books were treated in burlesque fashion; however, no pun was intended for when the titles are laid out syntactically, they portray a deep anxiety over the direction and quality of American public education. Possibly the anxiety could be dismissed as a cultural neurosis; and it could be explained that public education has always had its critics and that they have always lamented the lack of direction and rationale for what goes on. *Beyond the Classroom Door.* To refer once again to a position cited earlier in this paper, recall what John Dewey said in 1904!

In basic language rationale has to do with "why?" Why this or that subject? Why that teacher? Why those resources and learning materials? Why this approach? Why that learning environment? As the title of the book says, why not *And Madly Teach?*

For the past few years educators in Quincy have struggled with developing statements of rationale for most of the major domains of knowledge offered in the curriculum. The statements are adequate as far as they go, but the task for the future is the exploration of the meaning of the terms used in light of the other components of the SCLS. In the future, work needs to be initiated on statements of rationale for sub-domains of knowledge, on why particular skills are needed to teach certain subjects, and on why certain approaches to learning seem more adequate than others.

In concluding this limited treatment of rationale, we might include excerpts from a brief position paper on that component offered by Assistant Superintendent William L. Phinney:[18]

> Rationale is defined as the fundamental reason for something. In a formal sense it is a defense or an explanation of the controlling principles underlying opinion and practice. A rationale rests upon a theory of man and his interaction with the world in which he lives . . . .
>
> As we undertake an examination of Component Three . . . we move naturally and effortlessly from a consideration of our overarching goals and projections to the branch of philosophy called epistomology which deals with knowledge. However, there is no sharp demarcation between the components, for one cannot examine or discuss education intelligently until he has given at least tentative answers to such questions as, —What is the nature of man? Where does his fulfillment lie? What is the good society? What is man's relation to the State? What is man's relation to his fellow man? What is a good man? What is the good life . . . ?
>
> No program deserves serious study or consideration without an attendant rationale. Are there programs in our curriculum that are there because 'they have always been there?' Do we (and the students) have a right to challenge any program in a Student Centered Learning System that does not have a sound rationale? Does the program rationale describe its relevance to the needs of students? How does it contribute to the Goals and Behavioral Projections of the Student Centered Learning System? If there are no answers or the answers are vague or

indefensible, what is our obligation regarding the deletion or modification of these programs . . . ?

In essence [the] Rationale of the Discipline . . . forces us to examine why we teach what we teach.

CONCEPTS:

Since the beginning of recorded history, human beings have searched and inquired into the meaning of their own existence as well as the purpose of the universe. They have searched for: unifying principles, underlying ideas, comprehensive concepts. Epistomology – that division of philosophy devoted to the investigation of nature and the origin of knowledge – is the term used to identify that quest.

The early Greeks, including Plato advocated a theory of animism which held that an immaterial force (soul – but not according to the Christian concept) gave meaning and purpose to all things in the universe. Centuries later philosophers and psychologists developed theories of faculty psychology and mental states in offering an explanation to support how human beings come to understand order within the universe as well as how they come to know.

Faculty psychology, or formal discipline as it came to be called, held that all learning represented substantive activity on the part of the mind. The mind expressed itself through the sense organs in such actions as memorizing, imagining, observing, perceiving, thinking, willing and reflecting etc. The mind had these powers inherently, and it was the purpose of education and schooling to train such faculties through exercise – mental exercise. Experience and interest were of little or no consequence; the important task was to train the faculities of the mind. Such training came to be called formal discipline.

The doctrine of mental states emerged on the scene in repudiation of faculty psychology. Mental state proponents rejected the idea that the mind was made up of certain faculties. They advanced the notion through John Locke that the mind was a *tabula rasa* – a "clean slate," a "blank page." Experience became important to the extent that it became the source of information conveyed to the mind through the senses. The origin of human experience was traced back to the stimulation of the sense organs by external objects. However, the mind dealt in images – or mental states – and not real objects. Interest and experience became important as they served to stimulate the senses. Perception was important as it resulted in the mind recognizing and classifying the stimulation being conveyed into it. The theory of mental states gave rise to the doctrine of apperception advocated by Herbart. Learning was then seen as a building up of perception from simple to complex in an ever-widening sphere.

While faculty psychology is no longer honored as viable, the theory of mental states gave rise to structural psychology and is a forerunner of the state of the art today. However, there are significant differences such as mental states; and apperception cared little for a concern over individual differences or for a stage theory of human development. By apperception Herbart held that all learning followed a five-step procedure, namely:

1. Preparation
2. Presentation
3. Comparision
4. Abstraction
5. Generalization

The process of learning was fixed and was viewed as a whole-class procedure. The secret was in the preparation and the

presentation of the material. It was a process of indoctrination.

To continue to embrace mental states and apperception, the SCLS would be reduced by two components and cut in the dimensions of two others. Self-Learning Environment and Management Systems would be superfluous, while Diagnostic and Evaluative Tools and Procedures and Appropriate Multi-Media would be drastically restricted.

The theory of mental states led to indoctrination, and the same could happen in the SCLS approach to the structure of the discipline if instructional theory is not taken seriously. For scholarly implementation of the last five components of the SCLS, Quincy educators need to consider such positions as Piaget's stage theory, Bloom's and Krathwohl's taxonomies, Skinner's behaviorism, field theory and more – all in a unifying synthesis.

The approach to curriculum development being taken by Quincy educators is that of the structure of the discipline. While it is an outgrowth of mental states, it is much more. Mind and matter have no substantive qualities of their own, one apart from the other. Experience and interest are primary. Learning is seen as the result of the mutual interaction of the learner and the environment. Learning is seen as a psychological process, and knowledge is viewed as having structure.

A concerted effort is now under way in Quincy to identify the comprehensive concepts for each discipline. In the words of Assistant Superintendent Phinney: [19]

> A comprehensive concept acts as the organizing element in curriculum development and instructional procedures. This general or big idea serves to help the student and the teacher to organize the material to be learned. It provides each with a way to see relationships, to order, to categorize, and to build upon previous learning.
>
> In effect these concepts provide a map or blueprint by which students can explore the mysteries of a subject more intelligently. Concepts also provide him with a skeletal framework with which to solve problems within, as well as across disciplines of knowledge.

Robert F. Collins, former Assistant Principal at North Quincy High School, in a paper on *Some Thoughts on a Conceptually Oriented Social Studies Curriculum*, has pointed out that:[20]

> No one can "give" a concept to the learner. He must build it out of his own experiences. The process is a gradual one that usually takes place over a period of years, as the child has experiences that contribute to growth in meaning.

Mr. Collins quotes Professor Brandwein as follows: [21]

> A concept is sought, grasped, agitated, discarded, retrieved, dissected, compared, contrasted and discarded once again or filed, in the scanning-recording-retrieving-innovating mechanism we call the human brain. . . only to be brought out again to determine whether it has survived additional experience.

Collins concludes: [22]

> Consequently, concept forming is continuing growth. To seek concepts is to gain, in part, self-realization through experience.

The Comprehensive Concepts being suggested by Quincy educators as of this writing are in the process of being reviewed by members of the staff as well as by university scholars representing each of the several disciplines. The number of concepts in each discipline is as follows:

Math – 7
Physical Education – 4
Social Studies – 20
Language Arts – 12
Music – 8
Art – 10
Science – 8
World Languages – 11
Special Education – 8

Each of the Comprehensive Concepts is followed by a rational, a consistent breakdown into two more levels which have been designated as general objectives and performance objectives. These two levels of specificity form the basis for learning experiences for students. The experiences are to be offered in a manner that is consistent with what is known about the interest, need, and ability of each student.

INSTRUCTIONAL OBJECTIVES:

"People seldom read the books that they talk about," says Jean-Francois Revel in *Without Marx or Jesus.*[23] That devastating put-down seems applicable to the controversy that rages among educators over the use of behavioral objectives. Without end, articles and books are written on the subject, yet in many quarters educators seem to be lacking in an adequate understanding of the value and limitations of objectives.[24]

As with education itself there is no one all-inclusive definition of the term; therefore, the value of objectives needs to be understood in the context of their use. Whether or not they offer a technique for expanding, liberalizing, and humanizing learning opportunities, or result in restricting and de-humanizing education depends upon how they are used. To simply plug them into an instructional program because their use is fashionable cannot be justified.

Educators in Quincy know why they are using objectives and where they fit along the curriculum development-instructional implementation continuum. The reason offered by Bruce W. Tuckman is sound.[25]

> A curriculum must have a purpose. Its purpose ostensibly is to provide students with experiences that will lead them to attain certain desired end states. Prespecification of these end states provides a guide for the direction of the instructional process as well as a basis for determining if the instructional process has been a success. Thus, a curriculum must be defined in terms of the instructional goals of students. This is synonymous with saying that it must be defined in terms of the educational needs of students, for the goal of the curriculum is to meet the educational needs of the students.

In 1918 Franklin Bobbitt had put it this way:

> The central theory is simple. Human life, however varied, consists in the performance of specific activities. Education that prepares for life is one that prepares definitely and adequately for these specific activities. However numerous and diverse they may be for any social class, they can be discovered. This requires only that one go out into the world of affairs and discover the particulars of which these affairs consist. These will show the abilities, attitudes, habits, appreciations, and forms of knowledge that men need. These will be numerous, definite and particularized.

The task then in using objectives is first, one of defining their purpose, and second, one of determining a strategy for stating objectives with clarity and specificity. In response to this task, a guide for *Writing and Editing Performance Objectives* has been written by Robert F. Kempton and Patricia L. Gorman,

classroom teachers on special assignment as Research Assistants with the Quincy Public Schools, and Francis W. Keegan, an elementary school principal in Quincy.

The objectives currently in use in Quincy flow logically from each of the Comprehensive Concepts cited for each discipline. A series of non-repeating general objectives have been generated under each Comprehensive Concept. In turn, performance objectives have been identified and classified under each of the general objectives. As a result each performance objective ties back into a general objective, which in turn has grown out of a Comprehensive Concept. The relationship of each concept to both the Behavioral Projections and the Goals of the Quincy Public Schools has been made clear and can be traced.

By design neither the general objectives nor the performance objectives include learning activities. In the judgment of Quincy educators, to do so would have been too restrictive and would have defeated the goals of individualization.

"Flexibility" has been the key word in sequencing. Every effort is being made to keep away from sequencing by course titles or by grade levels, for to do so would defeat the conceptual approach being fostered and, once again, violate the requirements of individualization. However, in the basic tool and skill subjects where logical strands are self-evident, suggested – but not mandated – sequences are being made available.

In writing objectives, effort is being made to state each in response to the taxonomical levels offered by Bloom and Krathwohl. In addition, for each objective it must be possible to develop a criterion-referenced test item.

The controversy over a dualism between the cognitive and affective domains is considered a non-issue since every cognitive action is viewed as having an inherent affective dimension in that learning is viewed as the simultaneous interaction of the learner and the environment.

DIAGNOSTIC AND EVALUATIVE TOOLS AND PROCEDURES:

A total commitment to Component Six of the SCLS and to all that is implied here is what makes the Quincy design for learning student centered. Without such an appreciation the SCLS would be content centered; and education would serve the school as an institution of the state, as opposed to serving human beings who created the state as a vehicle for servicing their needs. If the other nine components of the SCLS are to be real in terms of the lives of individuals, then Component Six must be the nucleus. To think and act in concert with the dimensions of Component Six must become a way of life for all Quincy educators.

Ironically, unlike hospitals, schools have seldom been prescriptive. The criterion by which educators render their services seldom has been based primarily on what is best for the student – it has not been prescriptive. At times it seems as if students are used as the raw material or the fuel by which the school is kept moving and perpetuating itself. For the most part schooling is descriptive, for students are told what they must do if they are to meet the requirements of the course, the grade, or the program.

By no means is it being suggested that subject matter and standards are not important, and to so conclude is misrepresentation. Components Three – Five reflect the critical importance of content; however, content must have a purpose, and that comes primarily from the needs of human beings.

It is generally conceded that the reason why schooling has not been adequately organized in response to the needs of students is that human beings have known more about knowledge, and about the structure of knowledge, than about intelligence and how people come to know. It is only in the past century that psychology has developed to a point where the mystery of how learning occurs is beginning to be understood. However, while knowledge about knowing is expanding at a rapid rate, some eminent psychologists such as the late Kenneth W. Spence (1907-1967) maintained that the science of psychology is not yet ready to concern itself with actual schoolroom or "real life" situations.[27] Although Spence does not represent the majority opinion, his observation is significant in that it forcefully – if not disturbingly – reminds educators of the long road ahead.

It should not be inferred that it has only been in the past 100 years that educators have agonized over how to adapt what was needed to be known to the ways in which individuals learned. For example, the Spanish Verbal Realist Juan Luis Vives (1492-1540) was one of the foremost thinkers of his time and according to Wilds and Lottich:[28]

> He advocated that the masters should study each pupil individually and adapt the work each was to pursue to his particular interest and ability. He suggested that the pupils enter school a month or so early, so that their capacities might be studied thoroughly by the masters. His idea that at least four times each year all the masters should hold conferences, at which they could exchange observations concerning the progress and ability of their pupils, strikes a modern note.

Vives was ahead of his time. Individualization is still considered a "new fad" in many areas. About the only places where early admission for diagnostic purposes has been practiced is in summer Headstart programs established just a decade ago and at our military academies for incoming freshmen. Students are graded four times each year, but seldom is it the result of a team conference involving all the teachers of a student meeting in an individual pupil profile conference.

Component Six is not the private domain of guidance counselors, special needs teachers, nurses, and school psychologists. Quincy educators see learning as an interactive process involving the learner and the environment; therefore, teachers must diagnose and evaluate each individual's learning potential, needs and achievements in the light of the structure and content of the discipline to be learned, as well as what is known psychologically about each learner – in short, the Gestalt of learning.

Certainly educators have always wondered why and offered opinions as to how individual students or whole classes have or have not learned. However, the opinions have frequently been based on hunches, assumptions, past experience that seemed similar, or the results of norm-referenced measures such as standardized achievement or aptitude tests. Such diagnostic tools, while not bad in and of themselves, are simply not adequate. The state of the art today in education leads one to believe that educators can do better.

In moving to respond to the requirements of Component Six, educators need to be sensitive to the physical and emotional well-being of students, their genetic endowments, developmentalist theories of child growth and development, the taxonomical construct of the subject matter, the value and limitation of standardized achievement and aptitude tests, and criterion-referenced measures – again, and in summary, to the Gestalt of learning for each individual.

Diagnosis must precede instruction and evaluation, and it must result in a prescription for learning. Instruction must be implemented consistently with the prescription. Evaluation must be against the prescription.

STUDENT LEARNING ACTIVITIES:

This is "where it is at" as far as students are concerned since, in their understanding, the phrase "Student Learning Activities" is almost synonymous with the term "school." On a day-to-day basis it is not likely that students have occasion to give much direct thought to the other components of the SCLS, but school is what happens to them through student learning activities.

In like manner, Component Seven is also the operational focus of the classroom teacher. It is here that the teacher "puts it all together" in order to "teach school." The credibility of any project, scheme, lesson plan, or design for learning – including the SCLS – rests here, and is based on whether or not the teacher sees it as making a difference.

Student Learning Activities gain their validity in response to input from two other components, namely, Five (Objectives) and Six (Diagnostic and Evaluative Tools and Procedures). The content of any Student Learning Activity must reflect a performance objective which in turn is an outgrowth of a general objective and, ultimately, a Comprehensive Concept. The "how to teach it" dimension of any activity must be thought through and implemented in response to the many considerations referenced in Component Six.

In providing Student Learning Activities, the teacher automatically anticipates the last three components of the SCLS. The media or aids to learning that are to be included in the activity speak to Component Eight (Appropriate Multi-Media). In monitoring the activity for its reliability as a valid learning activity as well as for the student's resulting achievement the need for Component Nine (Management Systems) becomes self-evident. Obviously, the design of Student Learning Activities go a long way in determining whether or not Component Ten (Self-Learning Environment) is being nurtured.

If there ever was a time when the basic ingredients needed to teach school were a student, a teacher, a place, and a lesson plan, that time has passed if what is implied is a single lesson plan or student learning activity for the entire class. The lesson plan as the term came to be used in recent history reflected a commitment to the five-step method advocated by Herbart. In and of themselves, the steps remain valid, but the process is no longer reliable when it is taken as the single arrangement for orchestrating a learning activity for an entire group or class. A decade ago the NEA Commission on Professional Rights and Responsibilities put it this way:[29]

> An experienced teacher having clearly in mind the objectives toward which all his teaching is directed should be free from arbitrary formulas for lesson plans.

The intent of Quincy educators working through the SCLS is to develop a process whereby teachers can understand the structure of what needs to be taught and can then state the Instructional Objectives with clarity and specificity. The intent militates against arbitrariness in any area of the educative process.

In developing Student Learning Activities many factors need to be taken into consideration in addition to those few that have already been referenced. The

term itself suggests several, such as the fact that the activity must focus on the student. It must be developed consistently with what is known about learning. And, in that activities implies "action," they should be just that—they should set out the plans that will enable the student to interact with the environment.

There are a variety of generally recognized and accepted ways of packaging learning activities; and it is for educators to decide which, if any, of those that are available fit the organizational requirements and teaching-style needs of the teacher as well as the similar requirements and needs on the part of the learner. Contracts, programmed instruction, TLUs, LAPs, Linc-Pacs, etc. are all legitimate alternatives. What it is called and who originated it is not as important as what are its components and, when examined in the light of the emerging design for learning of the Quincy Public Schools, whether the particular approach will be found theoretically compatible with the SCLS.

Obviously, teachers are not obligated to select a method for packaging learning activities from among those that are commercially available or have been developed by a project somewhere. The development of Student Learning Activities begs teacher creativity. It is here that all the research and concern that centered on "method" for so many decades should be felt.

APPROPRIATE MULTI-MEDIA:

Quite possibly, Component Eight could have been combined with Component Seven. In addition, Components Eight and Nine are the only components of the SCLS that are somewhat dependent on electronic technology. Other than that, the SCLS could be implemented as an epistomological-psychological construct.

If Component Six (Diagnostic and Evaluative Tools and Procedures) is to make a significant difference in an individualized instructional program, then provision for appropriate multi-media must be made. Technology is the handmaiden of individualization; and without the sophisticated use of multi-media, individualization would be all but impossible. Aids to learning afford educators the opportunity to order and sequence content in a variety of ways as well as making it possible for them to program content so as to fit the learning style of each individual. The teacher who claims to be individualizing the teaching-learning process while confined to a book, paper, and pencil approach is uninformed and is trying to move a mountain with a teaspoon.[30]

Prior to World War II, educators did not need to concern themselves with media, simply because it was not available. With the War the requirements for training large numbers of personnel as rapidly as possible resulted in the military turning to recently developed media. Media was used primarily as a method of economizing time and reaching large numbers of people with the same message.

Today, media is seen not so much as a vehicle whereby large-group instruction can take place, but as an economic alternative to individualizing learning. Media makes it possible for teachers to be more responsive to the learning style and rate of individuals.

During the past quarter century, the use of media has followed a pattern that has been made familiar by other innovations. Once introduced, the use of media has traveled the route from resistance, to tinkering, to gimmickery, and now, hopefully, to sophisticated and appropriate use.

To designate Component Eight as "Multi-Media" would not do because the key to its use is that it be "Appropriate." Malpractice via use of media in schools can be committed by acts of commission as well as omission. To simply use an electronic aid to learning with little or no rationale for its use or for how the learner might respond is as indefensible as not using media at all.

There are times when a particular learning activity can be enhanced by media, and there are other times and environmental situations when the use of media can be the wrong approach. For example, in a classroom alive with activity, it might be totally inappropriate to have a student who has a short attention span and finds it hard to concentrate listening through earphones to a taped lesson on a basic math skill.

For media to be seen as an aid to learning, it must be used appropriately and it must be viewed as an extension of, not a substitute for, the teacher.

MANAGEMENT SYSTEMS:

To implement what is being attempted in Quincy requires a management system that at one and the same time is simple and complex. It must be of immediate utility to the teacher and thus functional in the classroom. Through it the collection and processing of data must be engineered in such a way as to lighten the burden on the teacher from the laborious demands of record keeping, while at the same time providing the teacher with the data necessary for informed decision making.

A management information component in a school system that is struggling to be learner responsive must serve many masters and answer diverse needs. First, and as already stated, it must be of help to the teacher. Second, it must focus on student data. Third, it must provide educators and School Committee members with the information needed to make rational decisions in such areas as budget, plant, and planning. Fourth, it must provide a framework for translating student data into meaningful "record cards." In short, it must generate data upon which assessments and evaluations of all actions and functions of the school system can be made.

In the immediate context of the SCLS, the management system must provide a method for fusing the content and data of all the components of the design so that the school system is truly learner responsive. To that end, Quincy educators are developing a computerized coding system that unites the Comprehensive Concepts and Instructional Objectives listed in Components Four and Five not only with the Goals and Behavioral Projections listed in Components One and Two but also with the available Appropriate Multi-Media catalogued through Component Eight and the Diagnostic and Evaluative Tools required in response to Component Six. This system, while one of vast proportions, has been developed to the point where it can be piloted using the Data Processing Facility of the school system. The effort is moving forward under the direction of Mr. Arthur Gillis, Coordinator of Library Services, and Mr. Robert Brennan, Director of Data Processing.

While the magnitude of the entire effort being undertaken requires the technological input that only computerized data processing can provide, many Quincy educators have moved ahead with the

development of manual management systems for the tracking of student progress in skill and tool subjects, diagnosing student needs, evaluating achievement, and prescribing the next step in an individual's program of studies. High among the constraints that prevent educators from doing more to individualize the teaching-learning process is the need for management systems, and the present concentration on this task by Quincy educators is indicative that the problem will be overcome.

In 1971 Quincy educators, in a proposal submitted for funding to the USOE, outlined the scope of a management information system. That outline is as follows:[31]

I. Management of Community Variables:

A. Ecology of the school system's understanding of the socio-economic environment in which the school system is embedded.

B. Develop administrative skills in recognizing community goals and translating these into school system policies

C. School-Industrial cooperations:
1. Develop "live" production educational sites
2. Utilization of school personnel in Industry
3. Adjust learning time schedules to industrial scheduling

II. Business Management:

A. Non-financial Operation
1. Educational business planning
   a. Equipment and personnel requirement
   b. Physical facilities, requirement and management
   c. Service operations
   d. Environmental controls
   e. Overall timeline for implementation and evaluation

3. Financial Operations
1. Cost analysis
2. Budgetary control and procedures
3. Educational finance, long range planning

III. Organizational Components and Operations

A. Analysis of Administrative Process

B. Staff Utilization and Deployment – Organization of Roles

C. Models of Communication Flow – Internal, External Analysis of Decision-Making process
1. Managerial roles, teacher role assignment
2. Criteria for effectiveness – evaluation process
3. Organizational change flexibility

D. Management and Development of Learner-Responsive Instructional System

1. See Learner-Centered Instruction System Chart and

2. Individualized Learner Activity Process Chart on the following pages (deleted from this paper)

E. Analysis of teacher variables
1. Personality characteristics - profile
2. Professional profile
   a. Behavior patterns
   b. Training, abilities and skills
   c. Attitudes and values
   d. Motives for teaching
   e. Teacher images
   f. Perception of children

F. Analysis of learner variables
1. Abilities, skills
2. Aptitudes and style of learning
3. Prior learning
4. Personality characteristics – profile
5. Attitudes and values
6. Behavior patterns
7. Career goals

G. Management of teaching-learning process
   1. Strategies for allocating human and material resources for instructional purposes
      a. Coordinated planning and scheduling
      b. Staffing patterns
         1.) team or cluster teaching
         2.) para-professional personnel
         3.) supplementary industrial sites
   2. Organization for utilization and management of learning resources (Educational Technology)
      a. Materials and equipment: Categories and uses –
         books, films, tapes, slides, video-tapes
         transparencies
         graphic materials
         3D materials
         recordings
         radio
         television
         other self-teaching devices and materials
         computer assisted instruction
      b. Laboratories: i.e. language, science, mathematics, Arts and Humanities
      c. Information storage, processing, and retrieval system
      d. Computer utilization plans
   3. Organization for instruction
      a. Student space allocation
      b. Student scheduling
      c. Testing and reporting
      d. Cooperative teaching

H. Management of Evaluation System
   1. Specification of evaluation criteria
   2. Designation of evaluation agents
   3. Information storage, analysis, and retrieval

The ultimate goal of the proposed management information system is to provide a school environment in which programs of instruction based upon the concept of a learner responsive system can function efficiently and effectively.

SELF-LEARNING ENVIRONMENT:

The foremost process goal of the entire Quincy effort is to prepare the way so that a Self Learning Environment is realized for every human being associated with the school system. While being heuristic in intent, Quincy educators are not advocating independent study as either the sole or primary way in which students come to know. They are advocating a learning environment that is "personalized, friendly, supportive, accepting, humane, and challenging, both for the student and the teacher."[31] They are not advocating any, or all, approaches to learning, but are striving to understand the structure of knowledge and the environmental conditions under which each individual comes to know. Independent study, peer learning, grouping, whole class, media supported, and on-site primary experiences are all among viable alternative learning environments. The use of each is dependent upon who it is that needs to know and what it is that needs to be known.

To better understand the intent of Component Ten, an examination of each of the terms should be undertaken in the context of all that has been said earlier in this paper, as well as in the other position papers available on the Quincy Method, and the primary resources cited in the footnotes and bibliography. Briefly, to inquire into the concept of *self* obviously begs the question on the nature of man philosophically, metaphysically, psychologically, and genetically. To speak of *environment* raises the age-old philosophical question of what is real. Is reality substantive or perceptive? Do human beings control their environ-

ment, are they controlled by it or is there some sort of interaction – a mutual process of doing and undergoing between human beings, other organisms, and the environment? In response to *learning*, the question is again simple, but the answer still largely unknown: How do human beings come to know? The "personalized, friendly, supportive, accepting, humane, and challenging" environment referred to earlier must be seen in the context of the types of questions just raised. While learning should be heuristic, and educators have license only to be humane, schools cannot be delusively euphoric.

Carl R. Deyeso, Director of Language Arts and Social Studies for Quincy, and a major contributor to the construct of the SCLS makes the statement that: [32]

> After dialogue and more intensive investigation into the nature of learning, there may be a case for Quincy to revise Component Ten. In our present stage of development, however, the term serves our purposes by providing a focal point for discussion since its ingredients (individuals, self-learning environment) are at the heart of the American educational process.

Quincy educators can live with and communicate their intent through the phrase "Self Learning Environment," but research has moved ahead in this area and there are alternative ways at getting at the issue. For example, Omar K. Moore and Alan Ross Anderson use the phrase "Clarifying Educational Environments": and as a result of their research, they have developed a four-point conceptual base for establishing educational environments. For the purpose of this paper, it will suffice to simply reference the four "Principles for Designing Clarifying Environments." [33]

1. **Perspectives Principle.**
   One environment is more conducive to learning than another if it both permits and facilitates the taking of more perspectives toward whatever is to be learned.
2. **Autotelic Principle.**
   One environment is more conducive to learning than another if the activities carried on within it are more autotelic.
3. **Productive Principle.**
   One environment is more conducive to learning than another if what is to be learned within it is more productive.
4. **Personalization Principle.**
   One environment is more conducive to learning than another if it:
   1. is more responsive to the learner's activities, and
   2. permits and facilitates the learner's taking a more reflexive view of himself as a learner.

In addition to the psychological frame of reference in which learning environment has been discussed thus far, there is another whole dimension, and that is physical. Educators need to look at the physical plant, determine what can be done within the existing facility to advance the design for learning, and make certain that all learning spaces are used in a manner that is supportive of a Student Centered Learning System.

CONCLUSION:

What has gone before can serve as a review to the Student Centered Learning System as that design is emerging and taking shape as a result of the effort of educators in Quincy. By no means is the theoretical construct either complete, nor has it been internalized by all members of the staff. Also, it is not being suggested that all the practical dimensions have been developed to a point where they can be implemented. However, a significant beginning has been

made, and the classroon teachers and school administrators who have work d on the SCLS can take pride in neir efforts and accomplishments.

The intention in the foregoing w s not to offer definitive comment on the lesign as a construct or on the several individual components, but rather to present an overview of the design for learning of the Quincy Public Schools. In a series of separate papers, each component of the design is treated in more detail.

Lawrence P. Creedon
September 1, 1974

The Ten Components of the Student Centered Learning System

1. *Goals of the Quincy Public Schools*
2. *Behavioral Projections for Learners*
3. *Rationale for the Discipline*
4. *Comprehensive Concepts for the Discipline*
5. *Instructional Objectives*
6. *Diagnostic and Evaluative Tools and Procedures*
7. *Student Learning Activities*
8. *Appropriate Multi-Media*
9. *Management Systems*
10. *Self-Learning Environment*

Footnotes

[1]These are briefly defined on pp. 5-7.

[2]These are briefly defined on p. 12.

[3]Charles E. Silberman, *Crisis in the Classroom,* Random House, New York, 1970, pp. 489-90.

[4]Jerome S. Bruner, *The Relevance of Education,* W. W. Norton and Company, Inc., New York, 1971, p. 59.

[5]*Ibid.*

[6]Jerome S. Bruner. *The Process of Education,* Vintage Book Edition, Alfred A. Knopf, Inc., New York, 1963, p. 20.

[7]*Ibid,* pp. 31, 32.

[8]These are identified on p. 12.

[9]Jean Piaget, *Six Psychological Studies,* Random House, Inc., 1967, p. v.

[10]Frank E. Williams, "Models for Encouraging Creativity in the Classroom by Integrating Cognitive – Affective Behaviors," *Educational Technology,* December, 1969, pp. 7-13; Reprinted: Miriam B. Kapfer (editor), *Behavioral Objectives in Curriculum Development,* Educational Technology Publications, Englewood Cliffs, New Jersey, 1971, p. 84.

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